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ABSTRACT

An overview of future global environmental concerns and a strategy for teaching action skills to students are presented. Information from "The Global 2000 Report" and quotes from 11 different people provide a variety of perspectives on future problems and solutions concerning world food and hunger, economic growth, population, water, air, natural resources, and ecological balance. A Proactive Action Model, consisting of three elements (perception, thought pattern, and action), is proposed as a method of helping students develop the critical thinking and decision-making skills necessary to deal with global environmental problems. Three basic timeline personality types are identified (yesterdays, todays, and tomorrows), and ideal futurists are considered to represent a combination of all three types. A sample unit on global pollution for grades 6-12 demonstrates how the Proactive Action Model works. (DC)

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PERCEPTIONS OF THE YEAR 2000: THEN, NOW, AND IN THE FUTURE

Developing The Critical Analysis Skills and Time Reference Perspective of Proactive Action Students in Environmental and Global Education Curricula

Richard Oakes Peters, Ed. D.

GLOBAL HORIZONS

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Richard Oakes Peters received his Bachelor of Science in Education and Master of Education degrees from The University of Maine (Orono); pursued doctoral studies at The Florida State University (Tallahassee); and was granted the Doctor of Education degree from The University of Rochester (NY).

Dr. Peters has been involved in the development of the Student Environmental Awareness (SEA) program, People In Their Environments (PIE), and HELP; the Humans and Environment Learning Program. In June 1981, Dr. Peters founded GLOBAL HORIZONS: The Center for Applied Ecosocial Studies. The purpose of GLOBAL HORIZONS is to develop, within students of all ages, an awareness and understanding of the world and its people.

Dr. Peters has been published by The Environmental Education Report, The National Council for the Social Studies (NCSS), Social Education, The Journal of Geography, The Social Studies Teacher, and Resources In Education (ERIC) in the areas of environmental education, global education, and the social studies.

INTRODUCTION

What will the world be like in the year 2000? This question has been asked, and answered, repeatedly over the course of the past two decades. Still, the year 2000 is in our future and our perceptions of that distant time are somewhat unclear - due to rapid, and often times unpredicted, change in global economic, political, and social institutions.

One of the most-recent attempts to project ourselves into the world of 2000 is The Global 2000 Report to the President prepared by the Council On Environmental Quality and the United States Department of State (1980).

How does The Global 2000 Report's view of the future compare to projections from the past twenty years? What steps have been proposed, planned, and taken in the past twenty years to guarantee the future global course of human action? How can today's students be trained in critical thinking and decision making skills, as well as in the application of these skills to an analysis/solution of tomorrow's problems?

THE YEAR 2000 - OUR FUTURE

According to The Global 2000 Report, if present trends continue the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now.

Rapid growth in world population will hardly have altered by 2000. The world's population will grow from 4 billion in 1975 to 6.35 billion in 2000. Ninety percent of this growth will occur in the poorest countries.

The world's finite fuel resources will pose difficult economic and environmental problems and they vary greatly in their amenability to exploitation and use.

Regional water shortages will become more severe, and serious deterioration of agricultural soils will occur worldwide due to erosion, loss of organic matter, desertification, alkalinization, and waterlogging.

On the average, world food production is projected to increase more rapidly than world population. Per capita consumption in the industrialized nations will rise but in the less-developed countries rising food output will barely keep ahead of population growth.

Air quality is likely to worsen as increased amounts of fossil fuels, especially coal, are burned. Another environmental problem

is the increasing concentration of carbon dioxide in the earth's atmosphere.

The world faces an urgent problem of loss of plant and animal genetic resources. Between half a million and 2 million species could be extinguished by the year 2000, mainly because of loss of wild habitat but also in part because of pollution.

What views of the future have others held in the past? Do these views have any relevance to our present outlook for the year 2000? Let us see. You, the reader, draw your own conclusions.

In 1969, Dr. Harry Gideonse, The New School for Social Research, stated that in the past man had science to control nature, for intellectual pleasure, or for war. Today, and in the future, the whole human experiment may hang on the question of how fast we now press the development of science for survival. We have a growing awareness of the (environmental) problems that our pursuit of higher material standards of living are gradually producing.

Referring to President Lyndon Johnson's Food for Freedom message to Congress (1966), Dorothy Jacobson, Assistant Secretary of Agriculture for International Affairs, identified

three phases of the war on global hunger. Ms Jacobson's statements followed a 1967 comment by the United States Department of Agriculture. According to the Department, the world food problem can be solved and it must be solved within the next two decades. While the world as a whole in 1980 will have a productive capacity greater than that needed to provide enough to meet world-wide demands for food, where hunger is concerned there is not one world but two; the highly developed, highly productive world and the hunger-ridden, less developed world. The world food problem will be basically one of disparity of food production and food availability between the developing and developed nations. In order to 'solve' future food problems there is a need to:

1) recognize the urgency of the need for a massive and immediate effort to combat hunger and malnutrition, particularly in those parts of the world where two-thirds of the people live, where average per capita diets are far from adequate, and where population is growing at an unprecidented rate.

2) tie food aid programs to accelerated efforts on the part of developing countries to improve their own agriculture.

3) recognize that hunger and malnutrition are not primary diseases of the last half of the 20th Century, Rather,

along with the so-called population explosion, there are symptoms of a deeper malady - lagging economic development of the countries of Latin America, Asia, and Africa, in which two-thirds of the people of the earth now live.

In 1968, the mushrooming cloud of the (world-wide) population explosion ... cries out for a greater and more urgent effort by the richer countries to assist economic growth in (the) poorer countries. According to Robert S. McNamara, President of the World Bank, it is clear ... that during the first four-fifths of the development decade (1960-1968) the income gap between the developed and the less-developed countries has increased.

With a human population of three and a half billion today, and the prospect of seven billion by the year 2000, our first priority is not to create an earthly paradise but to maintain a habitable world, according to Charles Yost, United States Representative to the United Nations (1970). We need a balance between economic growth and the wealth of our global ecology. The developing nations have an opportunity today to avoid the environmental mistakes that began with the Industrial Revolution, and to build their economies along more rational and humane lines.

Speaking in 1970, Robert S. McNamara noted that the deterioration of the environment is a great problem in the industrialized countries, but is by no means confined to them. How can we help the developing countries to avoid or mitigate some of the damage economic development can do to the environment, without at the same time slowing down the pace of economic progress?

Ian McHarg, University of Pennsylvania (1971) was of the opinion that man treats the world as a storehouse existing for his delectation. He plunders, rapes, poisons, and kills the biosphere in ignorance of its workings and its fundamental value, because man is an epidemic - multiplying at a super-exponential rate and destroying the environment upon which he depends. Human survival is contingent upon the development of an ecological view - man in nature.

In 1971, Ian MacGregor stated that our planet is finite. Fresh water, the air we breathe, arable land and all the mineral elements and sources of energy are finite. Also, the extended life span of man implies explosive population expansion. If the developed countries do not consider how they can expect to obtain the mineral and energy materials with which to support sound economies in the future, they have little hope for continued stability and there will be no

hope at all for stability among the less-developed countries. Both developed and developing countries must work toward better ways of dealing with their own future mineral resources and energy needs.

John E. Rielly (1971) discussed the growth of the world's human population. The present figure of 3.5 billion people in the world will reach 7 billion in the year 2000. Two-thirds of the world population now lives in the developing countries; by the year 2000 it will be approximately four-fifths. At least half of the developing world will have a per capita income of only $200 a year by the year 2000. A second major problem for the developing countries in the next three decades (1970s - 1990s) is the rapidly growing unemployment problems which are a by-product of the population explosion. Developing countries need more food, more jobs, better distribution of income, new labor-intensive technologies, better access to health and education, and more resources. They must create part of these themselves, but part must be received from external sources. Developing countries must acquire a capacity to feed themselves. Through the possibilities held out by the Green Revolution, there is a good chance that the amount of food needed can be grown. There is a growing interdependence of the world. It is clear that some problems facing the world will have to be solved in common or not solved at all.

Bernard Berelson (1971) indicated that population trends in the world are up. Short of an atomic catastrophe, no country is going to have fewer people than it has today, and many are going to have a lot more. So is the world as a whole.

In 1970 the National Oceanic and Atmospheric Agency (NOAA) was created to improve man's comprehension, use, and preservation of the oceans' physical environment(s) and their living resources. According to Mark Morton (1971) NOAA emphasized:

1) understanding the ocean; research and exploratory studies to establish a base of knowledge about oceanic life.

2) using the ocean; assessment of marine resources and their distribution.

3) preserving the oceanic environment; development of technologies, equipment, and management techniques to prevent and reduce damage and biological environment of the oceans.

Morton proposed the deployment of ocean environmental surveillance and monitoring systems which would lead to the management of the ocean environment; to assess the 'state of health' of the oceans and the coastal waters, detect pollutant levels, and monitor as well as predict natural weather phenomena. We stand today at the threshold of exciting possibilities for ocean exploration and development. We possess the capabilities

and the wisdom to utilize this environment, its food, its energy sources, its materials, and its recreational values for the betterment of mankind. At the same time we must protect the balance of the ecosystem from future degradation.

If we are to ameliorate the environmental crises which confront us, if we are to help restore an ecological peace to earth, if our concerns are now to turn from quantity to quality of life, then we must redefine our priorities and reorder our lives. This statement by J. Paul Austin (1972) was made in support of the idea that the well-being of earth transcends national interests. We are all interdependent, and each of us has a stake in what everyone else is doing. We are all affected by each other's actions. We must have international standards and controls to apply to all nations to prevent any further violence to the ecology of our planet.

Writing in the January 1981 issue of the Environmental Education Report, this author noted that human beings must begin to realize that they cannot survive on the face of the earth alone! They are biologically and socially dependent upon other forms of life for substance and existence.

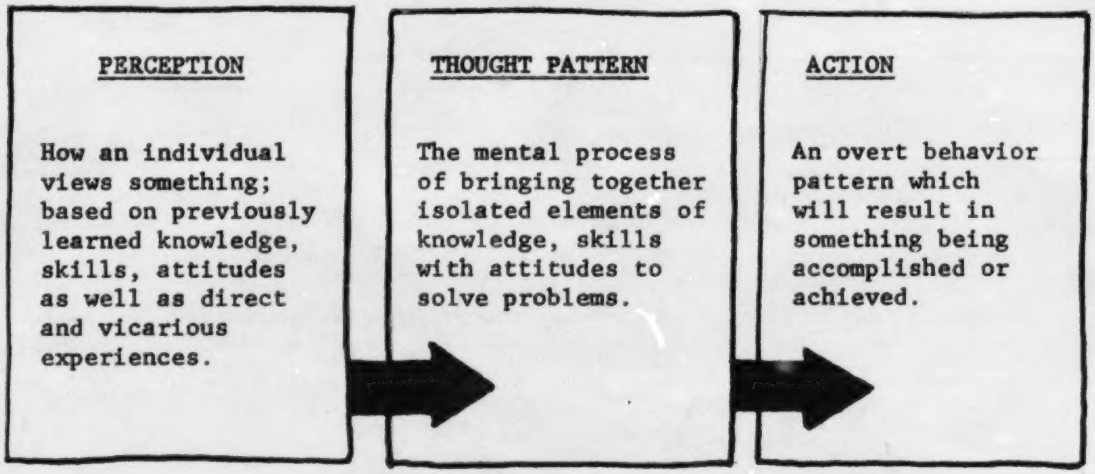
The Council On Environmental Quality concludes its report with the insight that unless nations collectively and individually take bold and imaginative steps toward improved social and

economic conditions, reduced fertility, better management of resources, and protection of the environment, the world must expect a troubled entry into the twenty-first century.

DEVELOPING PROACTIVE ACTION SKILLS IN STUDENTS

If today's students; tomorrow's economic, political, and social decision makers/leaders, are to critically analyze data and make decisions which affect the daily lives of us all then they must be trained in these social skills, and they must be given ample opportunities to apply these skills in both real life and vicarious situations.

In order for individuals to develop and apply critical thinking and decision making skills they must be directly involved in an on-going process of exploration, application, and modification. The Proactive Action student learns his/her skills by interacting with the Proactive Action Model.


PERCEPTION
How an individual views something; based on previously learned knowledge, skills, attitudes as well as direct and vicarious experiences.
THOUGHT PATTERN
The mental process of bringing together isolated elements of knowledge, skills with attitudes to solve problems.
ACTION
An overt behavior pattern which will result in something being accomplished or achieved.

When looking to the future we must view the past, assess where we are - now, and plan a course of action for tomorrow. This process of review (past), analysis (present), and preview (future)

is based upon the individual's mental 'period frame of reference' ; his or her personal timeline bias.

This author has identified three basic timeline personality types:

YESTERDAYS: those individuals who prefer to relate some aspect of their lifestyles to those 'good old days' . They physically exist today but pattern some aspect of their daily lives after practices and policies of the past.

TODAYS: those individuals who not only physically exist today but who are comfortable with the present and pattern their lifestyles upon contemporary economic, political, and social practices and policies. These individuals have no desire to return to the past nor to project themselves into the unknown future.

TOMORROWS: those individuals who prefer to relate some aspect of their lifestyles to that world and time yet to come. They physically exist today but pattern some aspect of their daily lives on predicted practices and policies of the future.

The ideal futurist is that individual who weaves some aspects of all three personality types into an internalized

lifestyle and value system. By blending together aspects of YESTERDAYS, TODAYS, and TOMORROWS the individual is in a position or perspective to learn from the past, to critically evaluate the present, and to plan a course of action for the future. Add to this perspective an awareness/exposure of/to the world - as both an ecological and social community,and the individual then possesses both the foresight and ability to comprehend, evaluate, and act.

SAMPLE UNIT

AREA OF STUDY: Environments - Natural and Social

CONCEPT : Pollution

PURPOSE : To acquaint students with types of environmental pollution - on a global scale.

GRADE RANGE : 6 - 12

ACTIVITIES :

1) Audiovisual software (e.g., films, filmstrips, slides, video tapes) are used to expose students to global pollution; problems and solutions.

2) Students select countries of the world and research existing pollution problems and measures taken to correct them.

3) Students take field trips into the community to observe existing pollution problems and planned solutions.

4) Students investigate various types of pollution (e.g., air, noise, water) and develop reports. Audio-visual software can be incorporated into the reports and/or presentations.

5) Guest speakers visit classrooms to discuss their experiences with environmental pollution control/management.

6) Students are involved in a decision making simulation. This activity can be filmed or video taped. (See PROACTIVE ACTION MODEL example)

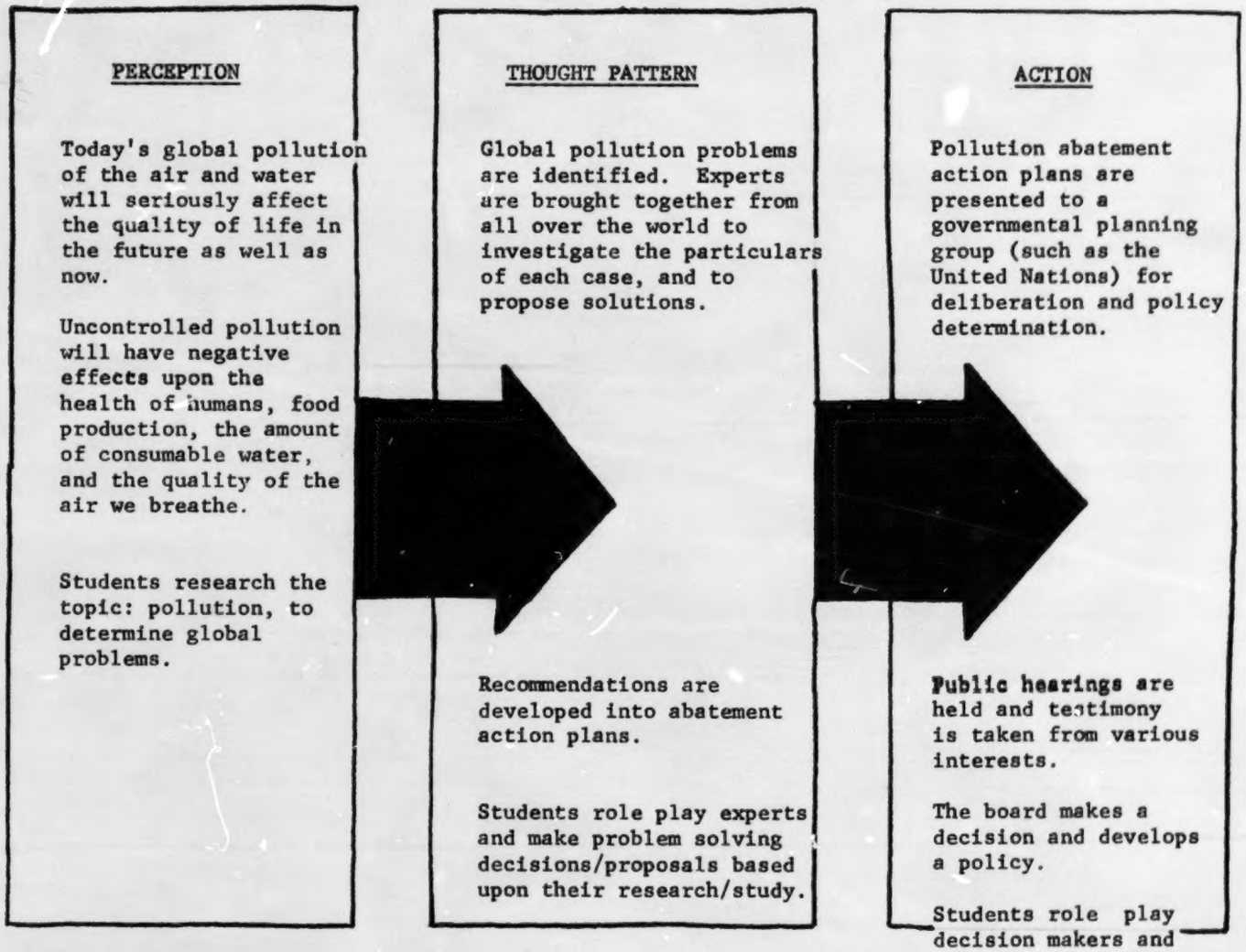
7) Students collect pictures and draw pictures depicting global pollution and compile them into a bulletin board display.

8) Students write to the Environmental Protection Agency (EPA) in Washington, DC and to the United Nations (New York) for information/literature regarding pollution and control/management programs.

9) Students conduct field-based pollution studies within the community environment and make film/slide or video tape media 'productions'. These projects can be screened in the classroom and/or at community meetings.

10) Students study area pollution problems, research possible solutions, and propose solutions. These solutions can be compiled into a plan and presented to governmental officials.

11) Students select a polluted site within the community and develop/conduct a clean-up project. A 'before-after' record can be kept on film, slides, or video tape.


PERCEPTION
Today's global pollution of the air and water will seriously affect the quality of life in the future as well as now.
Uncontrolled pollution will have negative effects upon the health of humans, food production, the amount of consumable water, and the quality of the air we breathe.
Students research the topic: pollution, to determine global problems.
THOUGHT PATTERN
Global pollution problems are identified. Experts are brought together from all over the world to investigate the particulars of each case, and to propose solutions.
Recommendations are developed into abatement action plans.
Students role play experts and make problem solving decisions/proposals based upon their research/study.
ACTION
Pollution abatement action plans are presented to a governmental planning group (such as the United Nations) for deliberation and policy determination.
Public hearings are held and testimony is taken from various interests.
The board makes a decision and develops a policy.
Students role play decision makers and those who testify.

PROACTIVE ACTION MODEL

Example

COMMENTS

Even though many so-called experts have attempted to predict the future, still the year 2000 is not totally in focus.

Will the world's human population be faced with the global problems predicted in The Global 2000 Report or will these problems be solved in common - as hoped for by John E. Rielly in 1971? Is there still time to change our collective ways regarding lifestyles and the misuse of the global environment or are our efforts too little - too late? According to the Center for Environmental Education (December 1981) humans are causing extinctions at rates that are unprecedented since the beginning of life on this planet. From 1600 to 1900, approximately 75 mammal and bird species have vanished - at the rate of 1 every 4 years. From 1900 to the present, about 75 have vanished - nearly one each year. In addition to mammals and birds, numerous other vertebrates, invertebrates, and plants have been lost. Some biologists estimate that 1 to 3 extinctions are now occurring daily and the rate will increase to 1 per hour by the late 1980s. It is likely that over one million species will be lost in our immediate lifetimes.

In order to solve our immediate pressing problems as well as future woes we, as a collective global community of humans, must possess the knowledge, insights, and skills as well as the courage necessary to solve problems and then to make a lasting commitment to action and stewardship.

Over ten years ago, Ian MacGregor stated that mankind will shortly have to face heavy, increased social costs both to control pollution and to overcome diminishing natural resources. The trade-off between environment and natural resources is going to cause many agonizing decisions for society.

Tomorrow's global citizens must be prepared and equipped to confront such issues and to rationally provide solutions for them.

In 1981, the National Council for the Social Studies issued a global education position statement. According to NCSS, the purpose of global education is to develop in youth the knowledge, skills, and attitudes needed to live (and may I add, ...and to act) effectively in a world possessing limited natural resources and characterized by ethnic diversity, cultural pluralism, and increasing interdependence. It is clear that the foundation for our understanding of world events, the impact of international issues on our daily lives, and the interrelatedness of people and of cultures must be built at the elementary and secondary levels of formalized education. Students should be provided with opportunities to learn to perceive and understand the world as a global system and to see themselves as participants in that system - recognizing the benefits, costs, rights, and responsibilities inherent in such participation.

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